

## You Can't Keep a Good "Hog" Down: The Curious Saga of the A-10 Aircraft

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**W**hile the A-10 Close Air Support Aircraft (CAS) had been planned for by the U.S. Air Force (USAF) as early as the mid to late 1960s, its true origin can be traced to December 1970 when Secretary of the Air Force Robert C. Seamans, Jr., awarded contracts for two prototypes, both designated the A-X. It would eventually be called the Thunderbolt II, descendent of Republic's famous World War II P-47 Thunderbolt I. But Air Force pilots would also call the Thunderbolt II the "Warthog," "Hog," or "HAWG" because it looked ugly, and because of its tenacious close-in and low-level fighting capabilities, especially during inclement weather.

The "Hog"—built for use against Soviet tanks in Europe during the Cold War—was not welcomed by most Air Force pilots, who felt that it flew much too slowly and clumsily. Indeed, the 1970s marked an era of fighter pilot resurgence after a long period in which strategic airpower and the bomber pilots had overshadowed them. Airmen who had any hope of advancement in the 1970s, however, wanted to fly the F-15 and F-16, both high-speed, highly maneuverable fighter jets. So when the "Hog"—after much testing and flying competition—finally entered the Air Force inventory, it had to fight for acceptance for nearly 2 decades. Not until it won admiration for its spectacular performance in the first Persian Gulf War was it fully accepted. Like the "Ugly Duckling" of nursery fame, the A-10 endured, finally rising to prominence and outlasting most of the aircraft flown by the USAF. At this writing, the A-10s projected lifespan has been extended to 2030, putting it in the category of the USAF's two other great workhorses, the B-52 bomber and the C-130 transport (*Figure 1*).

### The A-10

The A-X/A-10 was the first Air Force development program governed by Design-To-Cost (DTC) principles, in which either a simple budgetary/DTC goal or an average unit flyway cost target would be established by the Secretary of Defense in collaboration with the

Air Force. Also initiated was a Competitive Prototype Development phase that consisted of two contractors competing on a prototype development program, culminating 16 months later in full-scale development/production proposals (Watson 1979, 4). Following this paper contest, a flyoff between actual prototypes was planned from which a single contractor would be selected, an approach that placed heavy emphasis on extensive testing of the competing aircraft systems.

Under the rules of the competition, Headquarters Air Force would determine all performance goals. The Air Force's system program office (SPO), in concert with the contractors, was expected to meet these goals. The SPO was also responsible for additional technical projects such as the development of the 30mm gun eventually designated as the GAU-8 (or Gun, Aircraft, Unit-8) being developed by the Air Force's Armament Development and Test Center (ADTC). Studies had indicated that a 30mm gun could best cover the target spectrum of a close air support mission. CAS targets included personnel in foliage and foxholes; moving and fixed armored vehicles including armored trucks and medium and heavy tanks such as the Russian PT-76 light tank, T-54 medium tank, and JS-III heavy tank; the BTR-50P armored personnel carrier; and blast-sensitive, hard point targets, such as small watercraft, and bunkers (Watson 1979, 9).

Six companies submitted proposals for the A-X, and two were selected on December 18, 1970, by Secretary Seamans: the Fairchild Hiller Corporation, Republic Aviation Division from Farmingdale, New York; and the Northrop Corporation, Aircraft division, Hawthorne, California. To distinguish the two competitors, the Air Force designated the Northrop prototype, the A-9, and the Fairchild design, the A-10A. The flyoff was structured to test the two aircraft with difficult flying profiles in an attempt to identify and magnify differences between them. Basically, the trials showed no significant difference in weapons delivery accuracy between the A-9 and A-10A, although the A-10A held a slight edge in strafing on the 15-degree profile.

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Figure 1. An A-10 Thunderbolt II close air support aircraft makes its way to the runway during RED FLAG-Alaska (RF-A) 10-1, October 9, 2009, at Eielson Air Force Base, Alaska. RF-A provides participants with 67,000 square miles of airspace, more than 30 threat simulators, one conventional bombing range, and two tactical bombing ranges containing more than 400 different types of targets. The A-10s are assigned to Osan Air Base, South Korea. (U.S. Air Force photo by Staff Sgt. Christopher Boitz. Reprinted with permission.)

On January 17, 1973, the Defense System Acquisition Review Council (DSARC) met to review the A-X program and to select the winning aircraft. Fairchild's A-10A was chosen. Secretary Seamans provided several reasons for the selection. The A-10A had better ground handling capacity, the underside of the wing had easy access, and the aircraft's larger wing size provided more storage for ordnance. Seamans also noted that the A-10A was closer to the production phase than the A-9, which allowed the test program to progress faster with only minor modifications to the prototype. He added that the A-10's simpler design increased the likelihood that its unit recurring flyaway cost would be closer to the desired \$1.4 million target than the A-9, although there was no guarantee of achieving that figure. (Later on, the Air Force and the Office of the Secretary of Defense agreed to a flyaway cost of \$1.5 million per aircraft.)

### A-10/A-7D flyoff

Just as the A-10 appeared ready for production, the program underwent an unexpected diversion. Some members of Congress demanded a second comparative analysis, this time of the A-10 prototype versus the Navy A-7D aircraft. Several factors prompted Congressional interest in a comparison between the two: the A-10's high production cost, the A-10's seeming lack of versatility, and the rivalry between the two manufacturers—Fairchild (A-10) and the LTV

Corporation of Dallas, Texas (A-7D). In addition, a September 12, 1973, meeting between Secretary of Defense James R. Schlesinger and Senator Howard W. Cannon (a Democrat representing Nevada) raised the issue of survivability of the A-10 in the European environment and stressed the need for a flyoff between the Fairchild and LTV competitors.

The Office of the Secretary of Defense (OSD), the Air Force, and Fairchild all opposed the flyoff, maintaining that nothing could be learned from it. But the Air Force finally acceded to Congressional pressure and on September 19, 1973, the Air Force Chief of Staff General George S. Brown informed Senator Cannon that the Air Force would comply. The tests were flown between April 15 and May 9, 1974, with aircraft operating from McConnell Air Force Base, Kansas, against ground targets and simulated defenses located at Fort Riley, Kansas. The test and evaluation was managed in two phases. Phase I involved a limited, qualitative evaluation at the respective test sites. Phase II consisted of both qualitative and quantitative evaluations, conducted at Fort Riley. The four fighter pilots who were chosen had no prior experience with either aircraft but had extensive close air support combat experience in either the F-100 or the F-4 (Watson 1979, 23–48).

The evaluation involved 16 missions in all, and each mission included two sorties—one A-10 and one A7D. There were two basic scenarios: the enemy attacks

friendly forces executing delaying actions, and the enemy breaks through an unorganized friendly force. The test results gathered by OSD/WSEG (the Weapons System Evaluation Group) and the Air Force generally demonstrated that the A-10 was the more effective aircraft. The Air Force analysis found that the A-10 achieved greater lethality than the A-7D against CAS targets because of its larger payload and the (projected) antitank capability of the GAU-8 gun. In addition, the Air Force maintained that in a European conflict scenario the A-10 would sustain lower initial losses than the A-7D because of its hardness and superior ability to avoid attrition from air-to-air attacks. Finally, the cost issue was addressed, with the conclusion that the A-10A was less costly than the A-7D, both in terms of acquisition cost and in life cycle cost.

So, on July 31, 1974, Deputy Secretary of Defense William P. Clements authorized the Air Force to proceed with initial production of the A-10 using \$39 million for long-lead funding. He approved the procurement of 52 aircraft, subject to the provision that the purchase of an additional 28 aircraft be put on hold until further tests were completed. These tests included the GAU-8 gun and armor-piercing ammunition critical design reviews; completion of the engine qualification test; approach to stall, actual stall, and spin avoidance tests; and in-flight refueling.

### Hails study

Despite the go-ahead decision, some residual drama remained for the A-10 program. Once the production phase began, some in the Air Force began to doubt whether Fairchild was capable of producing the promised number of A-10s in a timely fashion. A review team headed by Lt. Gen Robert E. Hails, then Vice Commander of the Tactical Air Command, conducted a study during the period of September 4–22, 1974. They found Fairchild's management and organization inadequate to the task. The firm's last full assembly line effort had been the F-105, which was terminated in November 1964. Since that time the company had mostly done subcontracting. Specifically, the review team found Fairchild's management structure to be too complex and organizationally cumbersome to allow for efficient commitment to the A-10 production program.

The Hails study had definite effects upon both Fairchild and the Air Force. In early 1975, the manufacturer made sweeping changes to management, organization, and equipment; and the Air Force added specific procedures to help institute requirements suggested by the Hails report. As a result, the Air

Force stayed with Fairchild and, in helping the company refurbish its machinery, upgrade its facilities, and correct its managerial defects, forged a credible competitor for other major production programs. In the end, the Air Force and its industrial partner succeeded in producing the A-10 on the required schedule (Watson 1979, 23–48).

### A-10 performance

The late 1970s is often called the era of the USAF "Hollow Force," when gross underfunding across a range of activities—from operations and maintenance to morale, welfare, and recreation—caused adversities that reduced the morale and effectiveness of the service. Budgetary retrenchment that limited flying hours caused concern among combat pilots who claimed they were not receiving the training and experience necessary to fly and fight. But the A-10 managed to survive this period and later rode the crest of the Reagan defense-spending wave. The Warthog was sent to various units both stateside and in Europe and also was assigned to reserve units without much fanfare.

It wasn't until the Persian Gulf War that the A-10—by then, a 20-year-old weapon system program—got its time to shine. As war appeared increasingly likely, with Iraq and its leader Saddam Hussein contesting the sovereignty of Kuwait, the Western powers began to build up their forces in Saudi Arabia. Among the equipment they assembled was the A-10, from both active and reserve units. Still, there were Air Force commanders such as Lt. Gen. Charles A. Horner from Central Command who didn't want the "Hog" in theater. It took the personal intervention of Army Chief of Staff Gen. Carl E. Vuono and Secretary of Defense Richard Cheney to overrule Horner and allow the A-10s to be used.

During the first stages of the war, the A-10 and the U.S. Navy's AV-8 and the F/A-18 were considered the primary weapon systems preventing an Iraqi invasion of Saudi Arabia. In this period, the A-10 itself flew 175 combat sorties, mainly concentrating on detecting and destroying Iraqi electronic warfare and ground control intercept sites. As the war progressed, however, and the A-10 penetrated farther into Iraq, it destroyed so many targets—trucks, tanks, infantry emplacements, ammunition dumps and storage facilities, as well as artillery and Scud missiles sites—that it caused many of its detractors to change their opinions. Perhaps the most famous convert was General Horner himself who, when assessing the various elements of the Allied air forces then attacking Iraqi targets, said of the A-10, "I take back all the bad things I have ever said about the





Figure 2. A U.S. Air Force A-10 Thunderbolt II aircraft from the 75th Expeditionary Fighter Squadron out of Bagram Air Base, Afghanistan, deploys flares during a combat patrol over Afghanistan December 11, 2008. (U.S. Air Force photo by Staff Sgt. Aaron Allmon. Reprinted with permission.)

A-10. I love them! They are saving our asses!” (Smallwood 1993, 96).

In all, the Warthogs flew over 8,100 missions, an average of 193 missions per day (*Figure 2*). According to one source, they accounted for over half the confirmed damage inflicted on Iraqi Forces, despite flying only 30 percent of the total sorties. A good assessment of the Warthog’s phenomenal success was stated by a “Hog” pilot in Riyadh: “Here we were, a big, slow, strictly low-tech CAS airplane that would have been heading for the boneyard if the war hadn’t broken out—and now we’re doing BAI [Battlefield Air Interdiction], armed Recce [reconnaissance], and SAM suppression” (Smallwood 1993, 169).

### A place at the table

Although used sparingly in Bosnia during *Operation Deliberate Force*, the Warthog continued its superb performance during *Operation Iraqi Freedom* in active duty, reserve, and air guard roles. It has undergone many modifications during its long lifespan, particularly with the addition of global positioning equipment. Many A-10s are also being refurbished with larger wings in order to carry additional ordnance.

Having demonstrated its superiority in direct flyoffs, as well as in several wars, the Thunderbolt II has not

only proven its detractors to be mistaken but has managed to endure and to establish itself as an essential ingredient of American airpower. □

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